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ABSTRACT

The differential effectiveness of four compensatory education programs for economically disadvantaged children was assessed. Ninety-two children were assigned to one of the following remedial approaches: a child focused school based, a child focused home based, a mother-child home based, a mother only home based. A no treatment control group was also included. Pre and post measures assessed the relative impact of these approaches on subjects' reading levels, maternal participation and maternal attitudes. Additionally, the predictive validity of three selection measures given to the undergraduate paraprofessionals who delivered the program was assessed. Results indicated that the home based programs were more successful in improving reading levels and maternal participation. No significant differences were found between groups on maternal attitude measures. Comparisons between treatment conditions and the control group revealed that the control group increased significantly more on an achievement test subscale. One paraprofessional selection measure, the Group Assessment of Interpersonal Traits, was predictive of outcome. The implications of the overall design for model refinement were discussed. (Author/BE)

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TOWARDS MODEL REFINEMENT IN COMPENSATORY EDUCATION: COMPARISON OF INTERVENTION PROGRAMS AND PARAPROFESSIONAL SCREENING MEASURES[1]

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Running Head: Refinement in Compensatory Education

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ABSTRACT

The differential effectiveness of four compensatory education programs for economically disadvantaged children was assessed. Ninety-two children were assigned to one of the following remedial approaches: a child focused school based, a child focused home based, a mother-child home based, a mother only home based. A no treatment control group was also included. Pre and post measures assessed the relative impact of these measures on subjects' reading levels, maternal participation and maternal attitudes. Additionally, the predictive validity of three selection measures given to the undergraduate paraprofessionals who delivered the program was assessed. Results indicated the home based programs were more successful in improving reading levels and maternal participation. No significant differences were found between groups on maternal attitude measures. Comparisons between treatment conditions and the control group revealed the control group increased significantly more on an achievement test subscale. One paraprofessional selection measure, the Group Assessment of Interpersonal Traits, was predictive of outcome. The implications the overall design for model refinement were discussed.

Towards Model Refinement in Compensatory Education: Comparison of Intervention Programs and Paraprofessional Screening Measures

The primary purpose of this study was to determine the differential effectiveness of four compensatory education interventions designed to improve the reading levels of learning disabled, economically disadvantaged children. A secondary goal was to assess the predictive validity of three selection measures obtained from the undergraduate paraprofessionals who delivered the interventions.

The compensatory education approach attempts to provide remediation to children who are manifesting some type of cognitive or developmental delay. Several basic assumptions underlie these programs. First, these delays are assumed to be correlated with later academic and emotional dysfunction (Zax & Cowen, 1972). That is, these delays do not appear to improve spontaneously without some type of remediation. Compensatory education programs therefore tend to intervene early in the life span, particularly during the pre-school and elementary years. A second rationale for these programs is the finding that early developmental lags are particularly crucial problems for economically disadvantaged children (Jason, 1975). Subsequently, this approach has attempted to provide more equal educational opportunities for poor and minority children. Finally, compensatory

education received theorectical support from the literature on secondary prevention. Essentially, the preventive approach attempts to identify dysfunction and to intervene as quickly and as efficiently as possible in order to reduce the detrimental impact of the disability (Caplan, 1964).

Based upon these converging theorectical assumptions, there have been literally thousands of compensatory education programs implemented (Wargo, Campeau & Tallmadge, 1972). An exhaustive review of the strategies tried in this area would be prohibitive and would not serve the purpose of this paper or model refinement. Therefore, this discussion will be limited to several general categories or trends in the field. The first of these is the Child Centered approach and there are two general types. In the child centered school approach, a strategy is designed to remediate the child's deficits and the program is delivered in the school or institution which the child attends. This strategy has an individual orientation and there is minimal parental involvement. The most well known example of this approach is the Head Start Program, which essentially attempted to provide enriched cognitive environments to a variety of children showing cognitive or social delays (Bronfenbrenner, 1974). The second type of intervention, the child centered home approach, is also primarily geared towards the individual

child. It differs from the first approach in that it takes place in the child's home. While there is little formal involvement of the parents, the rationale for this approach assumes that intervening in the home indirectly increases parental involvement and stregthens the interface between the home and the school (Schaefer, 1969).

That the Child-Centered approaches produced immediate gains has been well documented. However, follow-up studies have indicated that these gains rapidly begin to erode until eventually there was little or no difference between the intervention group and controls (Jason, 1975). Bronfenbrenner (1974) concluded that the longer the follow-up period, the more apparent the erosion effect became. Schaefer (1972) suggested that the child's family, especially mothers, must be maintained. In another study (Radin, 1972) the researcher divided a matched sample of 71 pre-schoolers into three different conditions of maternal involvement. The project concluded that the increased treatment conditions with high levels of maternal involvement improved the duration of the children's cognitive gains.

In view of these arguments, two additional categories of intervention strategies have been utilized: a school or institution based parent/child approach and a home based parent/child approach. The school or institution based generally invited parents to the institution and utilized

an intervention designed to improve the interactions between the parent and the child (Toepfer, Reuter & Maurer, 1972). The home based programs employed similar techniques, except that the interventions took place in the subjects' home in an attempt to facilitate continued parental involvement (Levenstein, 1970).

While these four categories are by no means the only strategies in this vast field, they can be useful in identifying the major trends in compensatory education. Conspicuously absent from the literature, however, are comparative studies evaluating the differential effectiveness of these approaches. This is particularly true in regards to promoting maternal involvement since this appears to be developing into a major goal of these programs (Bronfenbrenner, 1974). Such studies are crucial because they provide an empirical basis from which to prescriptively apply interventions to specific target populations.

Two recent studies have made inroads into this refinement process. Jason, Gesten and Yock (1976) compared the effectiveness of a home based behavior modification intervention with a center based relational program. The intervention was aimed at toddlers who were exhibiting social or verbal developmental delays. Results indicated that both groups improved and were functioning at normal levels at the end of the program. The authors generally concluded that

both of these approaches appeared to be equally viable. In another study, (Radin, 1972) the researcher divided a matched sample of 71 pre-schoolers into three different conditions of maternal involvement. The results of the project appeared to support the concept of increased maternal involvement improving the duration of cognitive gains.

To summarize, there appears to be a trend in the compensatory education literature towards increased maternal involvement. The empirical evidence to support this trend is somewhat scanty, but it does appear to be consistent. Programs which included active maternal participation seemed to be more effective than programs only working with the child, particularly if long term follow-ups were employed. What is lacking, however, are comparative studies which would allow direct comparisons between various methods designed to promote maternal involvement. The present study was therefore designed to simultaneously compare several of these approaches on measures of maternal participation. The programs were delivered by undergraduate paraprofessionals.

A major concern in the paraprofessional literature has been the selection process. This is of particular interest with undergraduate paraprofessionals, where the pool of willing applicants is usually larger than the requirements of the project. Dooley (1975b) asserted that this selection process has been a seriously underresearched

area and believed that some interpersonal skills were needed in order for these paraprofessionals to be effective. Currently, no clear consensus exists in the field regarding the selection of individuals who possess those minimal skills. One measure which has been used for this task is the Group Assessment of Interpersonal Traits, or GAIT (Goodman, 1972). This is a behavioral measure designed to determine which individuals who are volunteering for a helping role will be the most effective. It is administered in groups of six to eight and samples quasi-therapeutic communication behavior. Several prior studies have found the GAIT to be moderately predictive of treatment outcome (Chinsky & Rappaport, 1971; Dooley, 1975b; Goodman, 1972; Rappaport, Chinsky & Cowen, 1971). It is a time consuming procedure, however, and may not represent the most efficient screening measure. The current study therefore compared the predictive validity of the GAIT with two shorter paper and pencil screening measures.

Method

Subjects

The study's target population included children between the ages of seven and 13 who had been diagnosed as learning disabled by both a psychologist and a neurologist. All subjects attended an inner-city school for learning disabled children. Subjects were eligible for the program

if their reading levels were below the second grade. Ninety-two children were included in the project: 80.4% were male; 83.7% were black or Hispanic and 91.4% were from the lower two socio-economic classes as measured by the Hollinghead Scale (1957). Eighteen undergraduates were also included in the project. Twenty undergraduates were initially selected for the project. Two of the students dropped out at the midpoint, however, because a transit strike made it impossible for them to complete their visits. The undergraduates and the students they were working with were therefore dropped from the study. These students were advanced psychology majors who received academic credit for their participation.

Procedure

Children in the target population were randomly assigned to one of four treatment conditions. After the initial groups had been assigned, additional data became available for the entire school population. A no treatment control group was therefore selected from the remaining students in the school. Chi square analyses indicated that there were no significant differences between these five groups on age, sex, race, or reading level (as measured by the Woodcock Reading Mastery Test; Woodcock, 1973). A one-way analysis of variance indicated there were no significant differences between the groups on measures of IQ.

All subjects in all treatment conditions received an initial home visit from the researcher who explained the goals of the project. The tutoring program used was the Dolch Popper Word List (Dolch, 1936). This educational tool consisted of three lists of words and phrases commonly used in reading programs. It was chosen for the project because it represented a crucial academic need for the children and was easily administered by both the paraprofessionals and the mothers. Mastery of these words was considered to be the fundamental prerequisite for minimal reading skills by school personnel and was equivalent to a second grade reading level.

Treatment Conditions

Condition I, Home, Mother/Child. After the initial visit by the researcher, subjects in this condition had weekly home visits by the paraprofessionals who delivered the Popper Word program. The first session was held in subjects' homes and was the same for all treatment conditions. Both mother and child were present during this initial session. The paraprofessional tested the child to determine a base line for the Popper Words. The paraprofessional then selected the first five words above the base line and taught to the child while the mother observed. The paraprofessionals were instructed to be supportive of the child and to verbally reinforce correct responses. The

mother was then asked to repeat the lesson. The paraprofessional corrected any misconceptions the mothers had, and verbally reinforced any supportive behavior she directed towards her child. During each subsequent session, the paraprofessional assisted the mother, who worked directly with child. After each session, the paraprofessional left two worksheets with the mother which detailed the words to be covered during the week. The mothers were asked to drill the child on two separate occasions during the week and to complete the worksheets which detailed the results of the review sessions. The paraprofessionals collected these worksheets during the next home visit.

Condition II, School, Child Only. From session two on, subjects received the Popper Word program administered by the paraprofessionals in the school. Mothers were not present for sessions but were asked to hold two review sessions and to complete worksheets in the same manner as the first condition. The paraprofessionals did not have any further contact with the mothers except to collect the worksheets.

Condition III, Home, Child Only. Subjects in this condition received weekly tutoring sessions from the paraprofessional which took place in the home. Mothers were not directly involved in these sessions, but were responsible for two review sessions and completion of appropriate work-

sheets. Paraprofessionals collected these worksheets from the mothers during their weekly visits.

Condition IV, Home, Mother Only. The initial design of the project called for the fourth condition as a School, Mother/Child approach. However, in an initial survey, 90% of the mothers contacted were unable or unwilling to come to the school on a weekly basis. Transportation and baby-sitting costs were the most frequent reasons given by these mothers. The fourth condition was then redesigned to determine if continued contact from the paraprofessionals was needed in order to obtain maternal participation. Subjects in this Home, Mother Only condition therefore received only the initial home visit from the paraprofessionals who taught the mother how to administer the tutoring program to her child. The mothers were then asked to structure three tutoring sessions a week with their child and to complete appropriate worksheets. The paraprofessionals had no further contacts with either the mother or the child except to collect the worksheets. All conditions lasted 12 weeks during one academic semester. Children received a maximum of three sessions per week, each session lasting approximately 40 minutes.

Condition V, Control Group. Subjects in this condition were selected from the remaining school population. They did not have any contact with the researcher or the paraprofessionals and received only the regular school curriculum.

Measures

Several measures were used to compare the differential effectiveness of the four treatment conditions. The two most direct measures were the number of Popper Words learned and the degree of maternal participation as measured by the number of worksheets completed by the mothers. Two measures of maternal attitudes were also used: the Parent Attitude Research Instrument or PARI (Radin & Glasser, 1965) and the Cognitive Home Environment Scale or CHES (Radin & Sonquist, 1968). Both of these measures were administered by the researcher both before and after the intervention. A structured interview format was used and the measure was given in the homes. The researcher also administered feedback questionnaires to the mothers, paraprofessionals and teachers. These questionnaires were specifically constructed for this project and were designed to obtain a rough index of satisfaction.

The above measures were the most relevant to the project and were assumed to be the most sensitive measures of change. It was also decided to examine any additional impact the intervention might have had on subjects' overall school performance. Three additional measures were therefore included: The Woodcock Reading Mastery Test (Woodcock, 1973) which measures the child's overall reading level; The Verbal Language Development Scale (Mecham, 1959) which assesses language ability and the Classroom Adjustment

Rating Scale (Lorion, Cowen & Caldwell, 1975) which assesses global classroom behavior. These measures, along with the Popper Word lists were administered to all children in the school by teachers as part of their routine evaluations. The teachers administered these measures both before and after the intervention and during the same time period that the other measures were given.

Selection and Training of Paraprofessionals

Paraprofessionals were recruited from undergraduate psychology courses. Students were invited to apply for a community practicum course for which they would receive academic credit. All students who signed up for the course agreed to spend one half day completing a series of measures, with the clear understanding that this did not guarantee acceptance into the course. During this initial session, three selection measures were obtained on each of the undergraduate applicants. Two undergraduate research assistants administered the First Impression Scale which was specifically constructed for this study. The purpose of this scale was to determine if a quick, easily administered and scored instrument would be effective in predicting the performance of the paraprofessionals. The scale consisted of six adjective parts in a semantic differential format. The scale and the inter-rater correlations are summarized in Table 1.

Insert Table 1 about here

The second selection measure was the Edwards Situational Preference Inventory (Edwards, 1972). This is a self-administered questionnaire which assesses three styles of social interaction: cooperational, instrumental and analytic. Essentially, the person high in the cooperational style related best to people, the instrumental style to objects and the analytic style to ideas. The cooperational scale was therefore the outcome measure used for this study since it most closely approximated the type of individual required for the project. The scale has been well developed and had two additional advantages for the present study. Its norms were based on a normal college population and it takes only 10-15 minutes to administer. The final selection measure was the Group Assessment of Interpersonal Traits (GAIT). This measure was administered in groups of six to eight. Subjects were asked to write two interpersonal concerns they could comfortably share with the group. One subject was then assigned the role of the discloser and read one of his or her interpersonal concerns. Another subject was given the role of the understander and engaged the discloser in a five minute dialogue. At the end of five minutes, the understander gave a 30 second summary of the interaction. Next, two other subjects formed a dyad and

the process was repeated until everyone in the group had played both roles. Subjects rated other group members along the following traits: quiet-outgoing, empathetic, accepting, private-open, firm-changeable, planful-immediate, happy-sad. Each subject received a rating for each of these seven traits, based upon the averaged perception of other group members. Two observers were also present for each testing session. These observers were not used for the First Impression Scale and received no prior training. The observers rated each group member twice; once for the subject in the understander role and once for the subject in the discloser role. Peers were asked to collapse their ratings across both roles. Inter-rater correlation coefficients for observer ratings were generally low, ranging from .06 (discloser role- planful) to .61 (quiet- understander role).

A factor analysis was performed on all observer and peer scales in order to determine if the number of variables could be reduced. Observer ratings were generated by averaging the scores of the two raters. A principle components analysis with varimax rotation yielded a five factor solution which accounted for 76.9% of the total variance. These results are summarized in Table 2.

Insert Table 2 about here

Since the factor structure appeared to be moderately stable and conceptually valid, factor change scores were the outcome measures used for the GAIT.

Thirty-six undergraduates were recruited for the course. After selection measures had been obtained on these applicants, 20 were selected to participate in the study based upon the researcher's clinical judgment. Results of the screening measures were not reviewed prior to selection. Random selection and comparison were not feasible for the present study because school officials were very concerned about the quality of the paraprofessionals used. Paraprofessionals who were selected for the course attended a training workshop which detailed the program and gave specific instructions for carrying out the tutoring sessions. Based upon the findings of Rappaport, Gross and Lepper (1973), it was assumed that normal college students who were volunteering for a helping role had sufficient social skills for the task. Systematic attempts to increase the students' empathy or sensitivity skills were therefore not employed. The general rules of contingency management were reviewed, along with an overview of learning disabilities and methods of improving attention span. In addition to this training workshop, paraprofessionals were required to attend weekly supervision sessions. These sessions were used to monitor progress and to resolve any problems the paraprofessionals

encountered. Each paraprofessional was responsible for one child from each of the first three conditions and for an initial visit to one child in the fourth condition.

Results

Four mothers, all from Condition IV (Home, Mother Only) declined to complete the project. One-way analysis of covariance were run on measures comparing the treatment conditions. In all cases, the covariate was the measure's pre-score. A significant difference ($F = 5.94$; $df = 3,64$; $p < .001$) was found for the number of Popper Words learned. Post hoc analysis, using the Neuman-Keuls procedure, indicated that Condition I (Home, Mother/Child) and Condition III (Home, Child Only) were significantly higher than Condition IV (Home, Mother Only) and that Condition I was significantly higher than Condition II (School, Child Only). A one-way analysis of covariance performed on the number of worksheets returned by the mothers also yielded significance ($F = 6.51$; $df = 3,66$; $p < .001$). Post hoc analysis, using the Neuman-Keuls procedure indicated that Conditions I and III were significantly higher than Condition IV and that Condition I was significantly higher than Condition II. An analysis of covariance was also performed for each of the three factors of the Parent Attitude Research Instrument and for the five factors of the CHES. No significant differences were found.

Chi square analyses were performed on the teacher,

paraprofessional and parent feedback questionnaires. Paraprofessionals more frequently indicated that they found Condition I to be most effective (χ^2 = 10.88; df = 4; p < .05) and Condition I mothers to be the most cooperative (χ^2 = 15.12; df = 4; p < .005). Paraprofessionals also indicated liking the children in Condition II more frequently (χ^2 = 12.82; df = 4; p < .01) and were interested in participating in Condition I most often again (χ^2 = 36.48; df = 4; p < .001). In terms of the maternal feedback measure, Condition IV mothers gave negative responses more often than mothers in Conditions I-III on the following variables: whether or not the mothers wanted the program continued (χ^2 = 21.77; df = 3; p < .0001), whether or not they were able to review the words with their children (χ^2 = 14.08; df = 3; p < .003) and whether or not the program was useful (χ^2 = 18.99; df = 3; p < .005). No significant differences were found on the teacher feedback questionnaire.

In order to compare the differences between the treatment conditions and the control group, one-way analyses of covariance were run on the following variables: the five subscales and the total score of the Woodcock Reading Master Test, the three subscales and the total score of the Classroom Adjustment Rating Scale, and the Verbal Language Development Scale. Significant group differences were found for the Word Attack subscale (F = 4.20; df = 4,82; p < .005)

and the Passage Comprehension subscale ($F = 2.77$; $df = 4,82$; $p < .05$) of the Woodcock. Post hoc analysis, using the Neuman-Keuls procedure, of the Word Attack scores indicated that the no treatment control group was significantly higher than all four treatment conditions. Post hoc analysis of the Passage Comprehension subscale revealed no significant group differences.

A multiple regression analysis was performed on the selection measures for the paraprofessionals. The dependent variable was whether or not the individual was selected for the course. This analysis was used to determine the selection bias of the researcher. The seven independent variables were: the total score of the First Impression Scale, the cooperative subscale of the Edwards Situational Preference Inventory and the five factors of the GAIT. Results indicated that Factor 2 of the GAIT (empathetic-accepting) was predictive of inclusion in the course ($p < .004$). These results are summarized in Table 3.

Insert Table 3 about here

Paraprofessional effectiveness was measured by averaging the number of words learned by all three of the children taught by each paraprofessional. A multiple regression analysis, using the same seven independent variable listed above, indicated that Factor 3 (quiet-open) of the

GAIT was predictive of outcome ($p < .001$). That is, individuals who were rated as more talkative, outgoing and open, were the most successful paraprofessionals. These results are summarized in Table 4.

Insert Table 4 about here

Discussion

From the standpoint of overall effectiveness, the program had a low attrition rate compared to prior studies involving economically disadvantaged subjects (Lorion, 1973). Only four mothers, all from the fourth condition declined to complete the project. This indicates that the approach met some needs and expectations of this population. It should be noted that this study was a brief one, and relied more on direct action and modeling than on verbalizations found in more traditional services. Prior studies have also shown brief, action-oriented interventions to be a useful model for an economically disadvantaged population (Goldstein, 1973).

A second major finding was that a differential response pattern did emerge from the treatment conditions. Conditions I and III, both of which were held in the home, were more effective in improving reading levels and maternal participation. On both of these variables, there was also a directional trend which indicated that Condition I (Home,

Mother/Child) was more effective than Condition III (Home, Child Only). While this trend was not statistically significant, it does appear to lend some support for the importance of maternal involvement. This assumption receives secondary support from the paraprofessionals rating of the treatment approaches. They viewed Condition I as the most effective approach and rated the mothers in this group as the most cooperative. The paraprofessionals were also most willing to participate again in this condition. Condition IV (Home, Parent Only) was the least effective in both improving reading levels and maternal participation. Indeed, there is some evidence that Condition IV had a negative impact since some of the mothers participating in it did not find the program to be useful or want it continued. It is worth noting again that four mothers in this condition declined to participate in the project because they did not see the utility of it. The overall pattern of results in this condition seems to lend strong support to the importance of including paraprofessionals or helping agents in some way in the project. Mothers appear to need additional support and guidance in order to effectively work with their children. It is also conceivable that placing additional demands on these mothers without such support will cause dissatisfaction and make them more resistant to other school sponsored projects. The School, Child Only Condition (Condition II)

was not significantly more effective than Condition IV in improving reading skills or maternal participation. While it did not evoke the same pattern of negative responses as Condition IV, it required a great deal more time and energy to organize and implement. When this additional time and effort is considered, it remains questionable that this condition offers a significant advantage over the Mother Only approach. The Home, Child Only condition (Condition III) was not significantly different from the school condition (Condition II) in terms of the number of words learned and the number of worksheets returned. The higher raw means of Condition III suggest a slight trend in the direction of this condition being more effective. In terms of the amount of time and labor expended, these two conditions are relatively equal from the standpoint of transportation, scheduling and supervision. The paraprofessionals, during informal feedback supervisory session, reported that while it was sometimes difficult to find a quiet place in the home in which to work, this inconvenience was counterbalanced by the additional insight they gained by being in the child's home. To summarize, based upon the most direct outcome measures, the Home, Mother/Child condition appeared to be the most effective, followed by the Home, Child Only condition and the School, Child Only condition. The Home, Mother Only condition was clearly the least effective and may even have had a negative impact. It should be remembered that

the present intervention was a brief one, lasting only 12 sessions. A longer program might well find this pattern to be more pronounced.

A similar pattern was not found on measures of maternal attitude. Several possible explanations exist for this finding. The first is, of course, that all of the programs had an equal impact on maternal attitudes. Another possibility is that a 12 week intervention period is too brief to change these attitudes. Additionally, the validity of the measures used to assess these attitudes must be considered. In the researcher's view, a substantial acquiescent response set was in effect on both the PARI and the CHES which was not adequately controlled. The interviewer in this study was white and middle class, while most of the mothers were black and lower class. Similar social class and racial differences have been associated with acquiescent response sets in prior studies (Radin & Glasser, 1972). The interviewer was also perceived as a representative of the school and mothers apparently wanted to make a good impression. Evidence of this is reflected in their tendency to respond to a question in the context of the interview and then express a completely opposite opinion once the formal part of the interview was over. For example, one mother vehemently disagreed with the following statement from the PARI, "Mothers sacrifice almost all of their own fun for their children." However, she later complained about her

children and stated that she had very little social life because of them.

Finally, the maternal attitudes tapped by these measures were rather global ones and did not assess the specific goals of this intervention. A more sensitive index of change would be a behavioral measure which sampled the interactions between mothers and their children. Preferably, this should be structured around a homework situation.

Treatment Groups Versus No Treatment Control Group

The finding that the control group did better on the Word Attack subscale was an unexpected one. This result may be because of random error, but may also indicate that the intervention program interfered with the particular phonic skills measured by this subscale. One possible explanation for this is that since the Popper Word program stressed recognition of the vocabulary words and did not allow the children to sound them out, subjects participating in the program may have learned to rely more heavily upon visual rather than phonic cues.

Certainly, the overall pattern of these results indicate that the intervention program was not sufficiently powerful to affect these achievement measures in any consistent direction.

Paraprofessional Selection Measures

Neither the First Impression Scale nor the Edwards'

Situational Preference Inventory were significantly predictive of outcome. In addition, the inter-rater reliability coefficients for the First Impression Scale were fairly low. This is not surprising considering how quickly the scale was constructed, however, its brevity and efficiency do not compensate for its lack of predictive power.

The inter-rater reliability coefficients on the GAIT were also low. Despite this, however, Factor 3 (quiet-open) was predictive of outcome. These two scales are on a continuum from quiet to outgoing and from private to open. Thus, the type of individual most successful in this project were the more talkative, outgoing and extroverted ones. This finding makes conceptual sense in that most of the families who participated in the project had multiple problems and tended to be depressed and withdrawn. They apparently responded best, therefore, to enthusiastic and energetic paraprofessionals.

The GAIT was also apparently superior to the subjective judgment of the researcher in terms of prediction of outcome. The research selected individuals who scored high on the Empathetic-Accepting factor of the GAIT. These individuals are more traditionally therapeutic in their style, but were not more effective in this project. The predictive ability of the observer quiet-open factor would seem to support the findings of prior studies which found the GAIT to be a useful selection measure (Chinsky & Rappaport, 1971;

Dooley, 1975b; Goodman, 1972; Rappaport, Chinsky & Cowen, 1971). Previous findings that the observer ratings are superior to peer ratings as predictors were also supported since neither of the two peer factors were successful in predicting outcomes (Dooley, 1975b; Rappaport, Chinsky & Cowen, 1971). Systematic training of the raters would probably substantially improve the predictive power of the instrument. Nevertheless, there is certainly evidence that the GAIT is a useful selection measure despite the increased amount of time and energy it requires over briefer measures.

Discussion of Overall Design

While the overall design did present major logistical problems and unforeseen difficulties (for example, a transit strike in the middle of the project) it did prove feasible to carry out in one academic semester. Additionally, the study appears to fit the criteria for a grid factorial design which examines the effects of specific interventions on a specific population while simultaneously evaluating therapist variables (Kiesler, 1971). Prior studies in the compensatory education area have either made direct comparisons between interventions, or evaluated selection measures for single interventions (Seidman & Rappaport, 1974). The present study appears to represent a more efficient design and thereby becomes a useful tool for model refinement.

Several drawbacks in this design suggest directions

for future studies. The initial design of the project called for a six month follow-up. However, financial and political difficulties in school eliminated this part of the design. The failure to obtain the planned follow-up leaves the question of long term effectiveness an open one. Since prior studies using economically disadvantaged children have suffered from erosion effects, this question becomes a particularly pressing one for future projects. More sensitive measures of maternal change also need to be developed, especially since amount of parental involvement appears to be a significant factor. The possibility that some or all of the gains found in the treatment conditions can be explained as maturation also requires further analysis since a control group was not used for the Popper Words.

Finally, the utility of this model for other types of problems and populations is an intriguing prospect. Future studies could examine such variables as the length of the intervention, the type of maternal and parental involvement which is the most effective, and the most predictive set of selection measures for the individuals delivering the programs. The present design appears to offer an efficient, flexible and inexpensive model to meet these goals.

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Table 1

Pearson Correlations Between Raters on First Impression Scale (n = 35)

Item	r
Warm-cold	.33
Pleasant-unpleasant	.24
Open-closed	.50
Accepting-rejecting	.37
Happy-sad	.45
Quiet-talkative	.61
Total scale score	.66

Table 2

Factor Loadings of GAIT Peer and Observer Ratings

Item	Loading
Factor 1: Firm-Planful	
U[a] Firm	.816
U Planful	.835
D[b] Firm	.740
D Planful	.870
% of Total σ^2 = 31.8	
Factor 2: Empathetic-Accepting	
U Empathetic	.681
U Accepting	.656
U Happy	-.680
D Happy	-.792
% of Total σ^2 = 22.0	
Factor 3: Quiet-Open	
U Quiet	.816
D Open	.596
D Quiet	.895
% of Total σ^2 = 10.7	
Factor 4: Peer Empathetic	
P[c] Empathetic	.828
P Accepting	.700
P Planful	.628
% of Total σ^2 = 6.8	
Factor 5: Peer Open-Quiet	
P Quiet	.508
P Open	.600
P Firm	-.617
% of Total σ^2 = 5.7	

[a]U = Understander Role

[b]D = Discloser Role

[c]P = Peer Rating

Table 3

Multiple Regression Analysis of Paraprofessional Selection Measures and Course Membership

Variable[a]	F to enter	p
Factor 2 (empathetic-accepting)	9.33	.004
Factor 3 (quiet-open)	1.57	.220
Cooperative Subscale	.46	.501
Total 1st Impression Scale	.48	.492
Factor 5 (peer quiet-open)	.12	.732

[a]Factors 1 (firm-planful) and 4 (peer empathetic) were dropped from the analysis because of insufficient contribution.

Table 4

Multiple Regression Analysis of Paraprofessional Selection Measures and Number of Popper Words Learned

Variable[a]	F to enter	p
Factor 3 (quiet-open)	17.3	.001
Factor 5 (peer qiet-open)	2.9	.111
Factor 4 (peer empathetic)	1.8	.206
Factor 1 (firm-planful)	1.2	.303
Cooperative Subscale	.36	.562
Total 1st Impression	.03	.862

[a]Factor 2 (empathetic-accepting) was dropped from the analysis because of insufficient contribution.